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Chromosome Number of *Dendranthema coreana* (Asteraceae)

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Dendranthema coreana, which occurs at high altitudes on Mt. Halla, Jeju-do, Korea, is a small perennial herb with large, solitary heads. The species was found to have a chromosome number of $2n = 90$, which is decaploid (based on $x = 9$) and the highest level of polyploidy in *Dendranthema* in Korea.

Key words: Asteraceae, chromosome, decaploid, *Dendranthema coreana*, polyploid

Dendranthema (tribe Anthemideae, Asteraceae), comprising 37 species, is distributed in Asia, mainly in China and Japan, and includes many poorly understood species (Bremer & Humphries 1993). Among such species is *D. coreana* (H. Léveillé & Vaniot) Vorosch, a perennial herb from Jeju-do, Korea. In a recent study of the morphologically variable *D. zawadskii* complex and the related species *D. boreale* and *D. indicum*, we reported a series of polyploids with $x = 9$, ranging from $2x$ to $8x$, in the Korean species of *Dendranthema* (Kim *et al.* 2003). Our extensive study further showed that *D. coreana* is decaploid ($10x$).

Decaploid individuals of *Dendranthema coreana* occur at an altitude of 1,500 – 1,700 m on the southwestern side of Mt. Halla, Jeju-do, Korea (Fig. 1). Ten individuals (Fig. 2) were collected there and planted in the Botanical Garden of the Graduate School of Science, Kyoto University and were used to determine the chromosome number. Voucher specimens will be deposited at KYO. Methods for pretreatment of root tips, fixation, maceration, and staining follow Kim *et al.* (2003). The number of chromosomes in each individual was determined by examining at least five cells at mitotic metaphase.

All 10 individuals, without exception, had a chromosome number of $2n = 90$ (Fig. 3), making them decaploids with $x = 9$. This is the highest polyploid number in the species of *Dendranthema* in Korea.

Morphologically, *Dendranthema coreana* is distinguishable from other species by its smaller size (less than 10 cm tall), larger heads (about 3 cm in diameter), pinkish white ray flowers, and fleshy bipinnatifid leaves (Fig. 2). Although it is unclear where and how the decaploid *D. coreana* originated, its narrow distribution at high elevations on Mt. Halla stimulated our interests in understanding how it reproduces and survives.

Reference

Bremer, K. & C. Humphries. 1993. Generic monograph of the Asteraceae-Anthemideae. Bull. Nat. Hist. Mus. Bot. Ser. 23:73-177.

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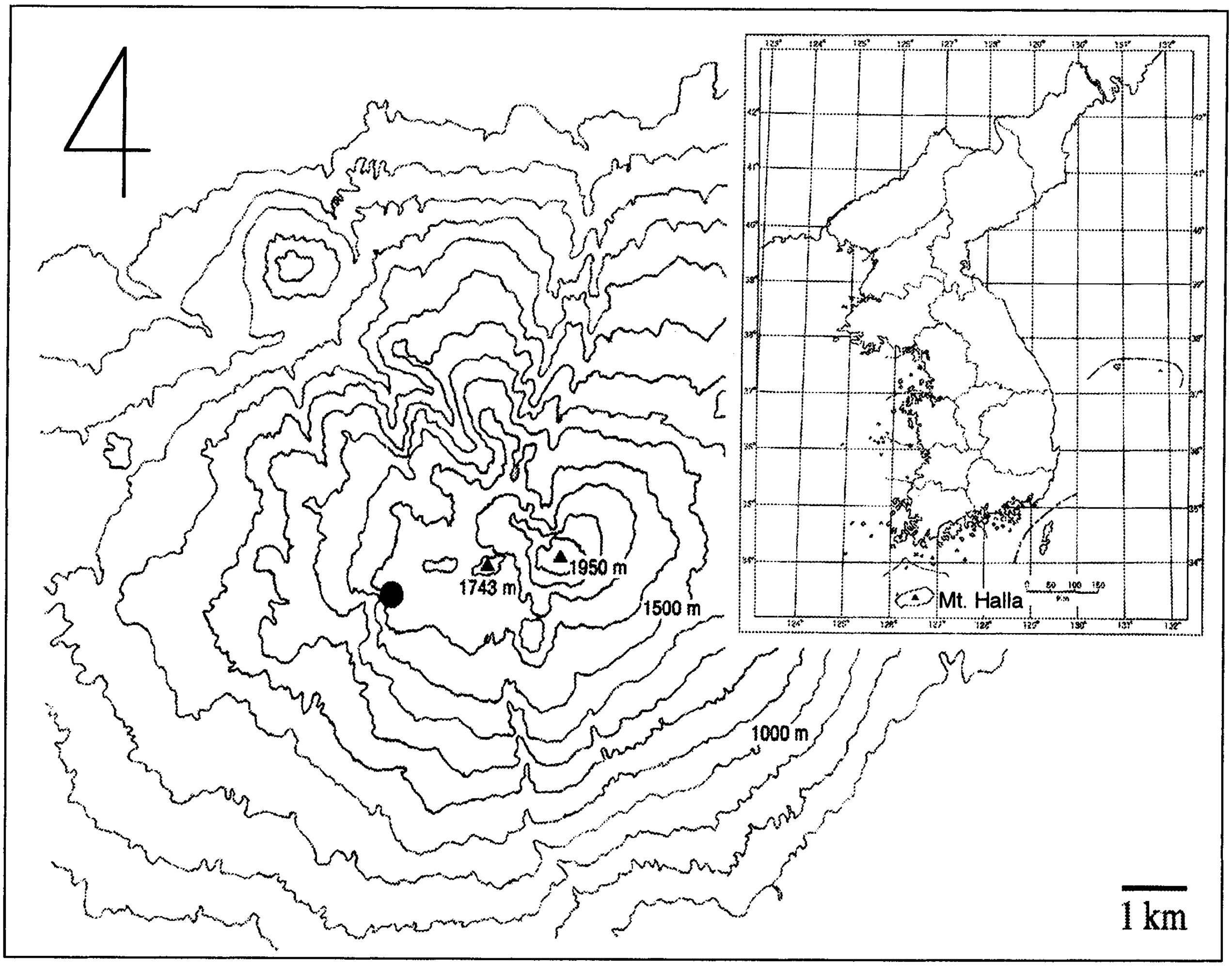
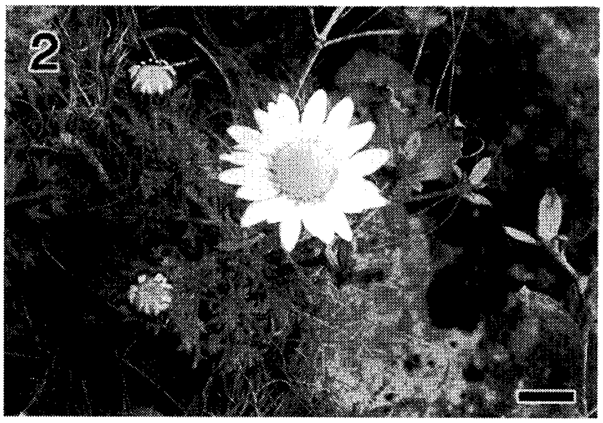


FIG. 1. Distribution map of decaploid individuals of *Dendranthema coreana*.



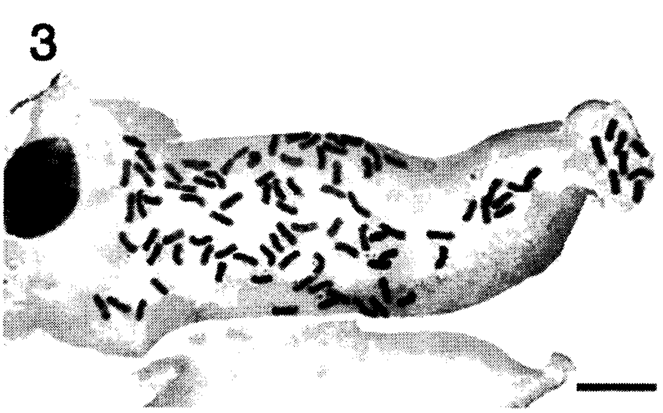


FIG. 2. Photo of decaploid individual of *Dendranthema coreana*. Bar equals 1 cm.

FIG. 3. Chromosomes at mitotic metaphase ($2n$=90) of decaploid individual of *Dendranthema coreana*. Bar equals 10 μm.

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